

**AMENDMENTS TO THE DRAWINGS**

Figure 3 is amended to include the reference numeral 120 for the microphone. No new matter is added.

**REMARKS**

Reconsideration and allowance of the subject patent application are respectfully requested.

The specification is amended to correct minor informalities.

As required, Figure 3 is amended to include the reference numeral 120 for the microphone. Consequently, withdrawal of the objection to the drawings is respectfully requested.

The dependency of claim 19 is changed to provide proper antecedent basis for “the array of electro-acoustic transducers.” Based on this amendment, withdrawal of the Section 112, second paragraph, rejection of claim 19 is respectfully requested.

Claims 1-8, 10-18, 20-24, 27, 28, 33, and 36-42 were rejected under 35 U.S.C. Section 102(b) as allegedly being anticipated by Hooley et al. (WO 01/23104). While not acquiescing in this rejection or in the characterizations of Hooley et al. made in the office action, independent claims 1 and 37 are each amended to recite registering reflections of the emitted signal. As explained below, Hooley et al. does not disclose or even suggest registering and evaluating reflected signals and is deficient with regard to the claimed subject matter at least in this respect.

As a preliminary comment, in concluding that the subject-matter of claim 1 is allegedly anticipated by Hooley et al., the office action refers to various disparate parts of Hooley et al., such as Figure 20, Figure 21, Figure 22 and Figure 27. Several paragraphs relating to other Figures are also referenced in the office action.

Hooley et al. discloses ten separate “aspects” of the invention. For example, Figure 20 corresponds to a second aspect which is concerned with directing “anti-sound” so that quiet spots

may be created in the sound field. This aspect itself has two modes. In a first mode, anti-beams are directed outwardly. In a second mode, a microphone and feedback loop are used to ensure that signals received at the microphone are minimized, thereby counteracting third-party sound fields. Figure 21, in contrast, is concerned with a third aspect that relates to use of a loudspeaker in a surround sound application. According to this third aspect, sound beams are directed toward reflective surfaces so that the user receives surround sound channels coming from various different directions. The fourth aspect of Hooley et al. is simply concerned with locating the position of a microphone. As shown in Figure 22, it is essential for this aspect that the soundwaves travel directly from the loudspeaker 105 to the microphone 2201. This allows the microphone position to be triangulated correctly. This is not disclosed as being used with either the second or third aspects.

Figure 21 of Hooley et al. (“third aspect”) generally discloses a surround sound system of the type disclosed in the present application. However, this section of Hooley et al. provides no hint as to how the system may be set up. The skilled person would therefore be required to set the system up himself and this might involve, for example, selecting beaming parameters which cause the beams to be directed towards the already placed reflective surfaces. In this system, the skilled person is required to calculate the various delay values necessary for each transducer and is required to individually program the delay elements of the surround sound system such that sound beams are directed towards the appropriate reflecting surfaces.

The problem with this is that it is tedious, requires specialist knowledge, and needs to be redone each time a reflective surface is moved. Starting from the third aspect of Hooley et al. and faced with this problem, the “fourth aspect of the invention” in Hooley et al. provides no clues as to its solution. Rather, the fourth aspect describes how the position of a microphone

may be determined using this system. This in itself does not teach the skilled person how to set up a surround sound system. The fourth aspect therefore does not address the problem inherent in the third aspect. Rather, the fourth aspect is concerned with solving a different problem, that of determining the location of a microphone.

The idea that the microphone can be used to detect reflected signals and that these signals can themselves be used to determine the reflective surfaces is new and is not at all suggested by the third or fourth aspect of Hooley et al. Although the fourth aspect of Hooley et al. discloses emitting test signals and registering the directly received test signals at a microphone, there is no disclosure of emitting directional beams (in Figure 22 one transducer only is used to emit each test signal) and there is no disclosure of registering at least one reflection (in Figure 22, only the direct sound is registered and no reflective surfaces are shown in Figure 22).

Accordingly, none of the aspects of Hooley et al. anticipate the subject matter of claims 1 and 37. Hooley et al. does not disclose emitting directional beams of sound and registering at least one reflection of such directional beams. Furthermore, Hooley et al. does not disclose evaluating the registered reflected signals so as to obtain data for use in configuring the surround sound system.

Elko (US 6,041,127) and Lavoie et al. (U.S. Patent Publication No. 2001/0038702) are relied upon in combination with Hooley et al. to reject certain dependent claims. However, these documents do not remedy the deficiencies of Hooley et al. with respect to claim 1, from which the rejected claims depend. Consequently, even in combination, these references would be deficient with respect to the claimed subject matter.

New claims 48-50 are added. These claims find support throughout the original disclosure. The surround sound system of claim 48 includes one or more loudspeakers configured to emit


directional beams of sound signals; controller electronics configured to control the loudspeakers to emit directional beams of set-up sound signals in different directions; and a detector configured to detect reflections of the set-up sound signals at one or more locations within the room. The controller electronics is further configured to generate, based at least in part on the detected reflections, surround sound system configuration data usable in steering directional beams for surround sound channels. As discussed above, the applied references do not disclose or suggest detecting reflections of set-up signals and evaluating these reflections to obtain surround sound system configuration data. Consequently, Applicant submits that claim 48 and its dependent claims patentably distinguish from these references.

For at least these reasons, favorable reconsideration of this application is respectfully requested.

Respectfully submitted,

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